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Ignotus ænigmaticus Slosson.

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Fig. 1.

Fig. 7.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 6.

Fig. 5.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XV. OCTOBER, 1904. No. 8.

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Four New Spiders from Kansas.

BY THEO. H. SCHEFFER, A. M.

(Plate XVII.)

The four new species of spiders herein considered were first described in "A Preliminary List of Kansas Spiders," published by a local journal of the Kansas State Agricultural College, April 2, 1904. It has seemed desirable to give the descriptions more general publication, especially since a few errors crept into the original article. Types of the species form part of the collection of the Kansas State Agricultural College, and duplicates have been sent to the National Museum at Washington.

Family THOMISIDÆ.

Xysticus modestus sp. nov. (Fig. 1.)

This is a modest little crab spider, smaller than any of the species ordinarily considered as common.

Female.—Length 4.5 mm.; width of cephalothorax 2 mm.; width of abdomen 3 mm. First and second pairs of legs stout, the tibiæ and metatarsi armed with two rows of spines set along the anterior margin. The corresponding joints in the legs of the third and fourth pairs show a few weak spines on the under surface.

The middle area of the cephalothorax is yellow, brightest near the base. In the central longitudinal line is a narrowing streak of brown running back from a point between the posterior median eyes. On either side of this streak is a broader stripe of brown, ending a short distance in front of the posterior margin, in an enlarged portion curved slightly outward. Still farther out, conforming to the outward curve of the cephalothorax, is a broad stripe of brown bordered laterally by a narrow line of yellow. On the extreme lateral margin is a hair-line of brown.

The ground color of the abdomen is dark brown. There is a narrow central stripe of dirty yellow and three broad transverse bands of about the same color. The portion of the dorsal region not occupied by these bands is punctate with yellow. The legs are yellowish brown, the former color predominating in the proximal joints, the latter on the tibiæ, metatarsi and tarsi. The third and fourth pairs of legs are lighter in general than the first and second pairs. Scattered over the abdomen and also on the front of the head and on the pedipalps are numerous stubby hairs, some of them enlarged at the ends so as to be almost clavate.

This spider is a pronounced type, but not common. Several females were taken under stones near Manhattan in June. In this situation they were guarding their egg sacks.

Family SALTICIDÆ.

Phidippus ferrugineus sp. nov. (Figs. 2, 3.)

This is a large species with two dominant colors—black and reddish brown.

Female.—Length 14-15 mm. Length of abdomen 10 mm.; width of abdomen 7 mm.; height of abdomen 6 mm. Width of cephalothorax 4 mm.; height of cephalothorax 4 mm.

Legs.—Relative length 4, 1, 2, 3. Absolute length 9.5, 9, 8.5, 10.5 mm., respectively.

Colors.—The abdomen is black beneath and on the sides, with sometimes faint indications of lighter spots or streaks. Above it is reddish brown, except in the central longitudinal region, which is occupied by a black stripe extending from the anterior pair of muscle depressions to the spinnerets. This stripe broadens just back of the posterior muscle depressions until it is nearly 3 mm. in width, when it narrows again gradually toward the tip of the abdomen. In some specimens the red projects into the stripe so as to form two pairs of spots. Often these spots are entirely isolated from the red of the dorsum. Occasionally a spider has scarcely any indication of the stripe, being of a uniform reddish brown color above. Usually a lighter red or yellowish streak extends along the front border of the abdomen and runs diagonally down the sides. Back of the diagonal portion of this stripe may be one or two more yellowish stripes running down from the red-brown of the dorsum.

The cephalothorax is black beneath, on the sides, and on that portion of the dorsal aspect that slopes toward the abdomen. The higher portion is reddish brown above, like the abdomen. The cheliceræ are iridescent green and purplish. The pedipalps and the first two pairs of legs have yellowish scales scattered here and there, and rings of like color near some of the joints. The presence of some long whitish hairs on these appendages is also common. The second and third pairs of legs are almost always uniformly black, though some specimens have the proximal half of the tarsus lighter.

This spider spends the winter under loose stones in large oval dwelling-sacks of closely woven silk, protected in some cases by the addition of leaves or trash. I have found the species only in the vicinity of Manhattan, on the summits or higher slopes of hills capped with the Permian limestone. I have not been able to identify the male.

Family ARGIOPIDÆ.

Araneus singæformis sp. nov. (Figs. 4, 5, 6.)

This small orbweaver is of the type usually referred to the genus *Singa*, a group whose species Simon includes in the genus *Araneus*.

Female.—Length 4-5 mm. The abdomen is oval, moderately high, and symmetrical in outline. It projects some distance over the cephalothorax. The latter is broad back of the head region, which is much narrower and distinctly set off by lateral grooves. The head itself is considerably elevated. The median ocular area is nearly or quite square. The lateral eyes are contiguous. The legs are short and show very few spines.

Coloration.—The cephalothorax, legs and cheliceræ are various shades of dull yellow. The head is usually brightest and the thoracic region darkest, in some cases tinged with brown. The legs are unmarked, except in an occasional specimen which shows traces of longitudinal stripes, particularly on the femora. The ocular quadrangle, as well as a small area about the lateral eyes, is black. The abdomen above and on the sides is whitish, tinged with a fine network of brown. The muscle depressions are marked by brownish spots, and down the center of the abdomen in most specimens is a more or less branched scar-like stripe. A broad border of black nearly or quite encircles the dorsum near the margin. Sometimes it is interrupted at the anterior end and occasionally also at the posterior end. The central portion of the abdomen beneath is occupied by a broad black band running back from the epigynum and enclosing the spinnerets. On either side of this is a narrow stripe of

white, and between this stripe and the margin another band of black. The sternum is also black. These black areas, above and below, are more or less dotted over with light spots.

I have taken but one specimen of this spider in sweeping, but secured over a hundred mature females from the provision stores of mud-dauber wasps in Wallace County, July 16th.

Family LYCOSIDÆ.

Lycosa wacondana sp. nov. (Fig. 7.)

A small species, found about springs or creeks on the prairies.

Female.—Length 7-8 mm.; width of cephalothorax 3 mm. The abdomen is slightly longer than the cephalothorax, which is narrow in front and widens rapidly back of the head, the thoracic region proper being as broad as it is long. The posterior margin of the cephalothorax is very noticably procurved above the peduncle.

The legs are rather long and slender. The fourth pair is longest, measuring about 13 mm. The front pair measures 10 mm. They are sparsely covered with dark hairs and beset with black spines.

The ground color of the legs is dull yellow, but they are darker toward the ends, and some of the joints, particularly the femora, are banded near the middle and at their extremities by the darker shade. The coxæ are lighter above and below than the general ground color of the legs. At the proximal end of the trochanters, anteriorly, is a slight roughened prominence or two much darker in color. The brownish cephalothorax presents a dull yellow middle stripe, widest back of the eyes, and two somewhat undulating lateral stripes of the same color. The dorsal groove is marked by a fine dark line. From its anterior end a forked stripe of brown runs forward to the eyes. In the brown area between the central and lateral stripes of the cephalothorax are several darker streaks arranged radially from the dorsal groove. The ground color of the abdomen is a darker brown than that of the cephalothorax. It is finely punctate with dull yellow. On the front half is a pointed yellow stripe running back to the region of the muscle depressions, and there are faint indications of transverse streaks on the hinder half. The sternum is light in the middle and darker around the edges. The under side of the abdomen is similarly colored, except that in the central line of the lighter area is a darker streak running from the epigynum to the spinnerets.

I do not know the male of this species. Have taken the female in June about Manhattan, and in August at Waconda Springs. On the latter occasion nearly all the females were carrying cocoons of eggs.

EXPLANATION OF PLATE XVII.

Fig. 1.—*Xysticus modestus*, dorsal view of female.
" 2.—*Phidippus ferrugineus*, dorsal view of female.
" 3.— " " side view.
" 4.—*Araneus singæformis*, dorsal view of female.
" 5.— " " ventral view.
" 6.— " " epigdnum.
" 7.—*Lycosa wacondana*, dorsal view of female.

The American Genera of the Bee Family Dufoureidae.

By Henry L. Viereck.

As defined by Robertson, Can. Ent. xxxvi., p. 37, this family constitutes a compact group of genera in the old Panurgidæ.

Labial palpi with the first joint distinctly longer than the next three, second joint at least one-third as long as the first joint; posterior femora in the male laminate; abdomen not toothed.
Neohalictoides n. g., type **N. (H.) maurus** Cress.

Labial palpi with the first joint distinctly shorter than the other three, second joint about three-fourths the length of the first joint.
Legs ordinary . . . . . **Epihalictoides** Ckll.
Legs elaborately produced into spines and angles.
Cryptohalictoides n. g., type **C. spiniferus** n. sp.

Labial palpi with the first joint rather shorter than the next three joints together, the second joint about one-half the length of the first joint . . . . . **Parahalictoides** Ckll.

Labial palpi with the first joint about one mm. shorter than the next three joints together, the second joint about two-thirds the length of the first joint or a little shorter; head narrow, distinctly longer than broad; male with a pointed tubercle on the posterior trochanters . . **Conohalictoides** n. g., type **C. lovelli** Vier.

Cryptohalictoides spiniferus n. g. n. sp.

♂. 11 mm. long. Head.—Front closely and finely punctured, frontal impression represented by a faint impressed line, above the insertion of each antenna is an oval impression; vertex with the punctures larger than on the front and scattered, closest back of the ocelli; cheeks if anything a little broader than the eye, punctured like the front; distance between posterior ocelli a little less than the distance between the lateral ocellus and the nearest eye margin; clypeus closely punctured nearly hidden by the hairs hanging over it, apparently smaller than the labrum; labrum convex, smooth, somewhat longitudinally striated, punctured on the lower margin; mandibles with a short blunt tooth not far from the apex; scape about as long as the second joint of the flagellum, pedicellum distinctly shorter than joint one of the flagellum, the pedicellum and the first joint of the flagellum together shorter than the second joint of the

flagellum; pubescence of the head pale whitish, thin and loose, most abundant below the antennæ, where it almost obscures the surface; head black, mandibles brownish, flagellum, except the first joint brownish beneath.

Thorax.—Prothorax rounded, presenting a transverse fold, dull, rugulose; dorsulum shining and with distinct punctures well separated on the posterior half, the anterior half dull with the punctures almost adjoining; scutellum sculptured like the posterior half of the dorsulum, with a slight median groove; postcutellum rugulose; metathorax with its superior face scooped out and striated the striæ rather close together and regular, the central one strongest, posterior face with an indistinct sulcus, the surface rugulose as is the surface of the metapleura; legs with the following peculiarities, anterior tibiæ swollen, produced into an angle on the anterior margin, this angle is notched and has a beak on one side of the emargination, beyond the angle is a finger-nail-like production which shuts down on the apical tubercle of the inner side of the metatarsus; metatarsus at base with a blunt production, the other tarsal joints of the anterior legs not produced, claws cleft; medial legs with the femora produced into a large triangular process posteriorly, that is as long as the femur, tibiæ almost triangular in outline, the production on the anterior margin emarginate so as to give the appearance of a truncate process on the anterior margin; metatarsus broadly produced near the base, flattened and laminate posteriorly on the apical half, apex anteriorly produced into a blunt process the other tarsal joints as on the anterior legs; posterior legs with the femora produced posteriorly and drawn out into a slender styloid process rounded at the tip and directed backward and inward, tibiæ broadly produced the production directed inward and provided with two strong processes, the anterior process like a claw and directed forward and outward, the tip directed backward and outward, the posterior process is broad and blunt, almost truncated and directed downward and slightly outward, metatarsus somewhat flattened broad and angulate on the posterior margin, first joint of the small tarsal joints about as long as the next two together, the terminal joints as in the middle and anterior legs; wings brownish, nervures very dark brown, stigma nearly black, first recurrent nervure nearly interstitial with the first transverse cubitus. Abdomen shining, rather coarsely tessellate, the broad margins brownish, distinctly depressed and minutely punctured, fifth ventral segment with a triangular space sharply outlined, terminal dorsal segment with a narrow median impunctate space, at the apex of the abdomen the pubescence is nearly as abundant as on the face below the antennæ. The metathorax and abdomen are less pubescent than the rest of the body, first three dorsal segments with white pubescence; the fourth, fifth and sixth with black pubescence. Black, legs partly inclining to brownish, apical two or three tarsal joints and claws brown.

Type locality, Nevada. Type, Am. Ent. Soc., Phila.

Notes on the Orthoptera of the Keweenaw Bay Region of Baraga County, Michigan.

By James A. G. Rehn.

(Continued from p. 237, Vol. xv, No. 7.)

Dissosteira carolina (Linnæus).

Twelve specimens; four males, eight females. Pequaming, August 8, 11, 20, 21, 22, 25 and 31. Road along lake shore, August 20. Brulé on mainland opposite Pequaquawaming Point, July 31.

"The first specimens of this species were seen on July 18th. They did not become very common till the end of the month, and were restricted to colonies along dry, dusty roads. In September, when all other grasshoppers were very much thinned out, this species had not diminished in numbers."

Circotettix verruculatus (Kirby).

Twenty-five specimens; fourteen males, eleven females. Pequaming, July 18 (shore, edge of tamarack swamp), 22, 27, 31; August 2, 21 and 31, L'Anse, July 23. Point Abbaye, July 31. Shore of Keweenaw Bay, L'Anse et Vieux Desert Reservation, July 22.

"This species first appeared on July 16th; they increased rapidly in numbers and were quite common until almost the end of August, about the town, in the lumber-yard and among driftwood on the shore. By September 1st they had become very scarce, and the few specimens I took were in bad condition. Their flight is very strong, and they spring off with such swiftness that they are difficult to catch even with a net. They are very shy, but can be approached from the rear to within striking distance, if sufficient care is used. They fly high when alarmed, sometimes going far above the treetops, and I have seen one, when thoroughly frightened, fly swiftly out over the lake until lost to view. They start up with a sharp crackling; when frightened, however, usually flying silently; but they delight in hovering ten or fifteen feet above the ground, making, meanwhile a great clatter, which may be heard many yards away. This noise is kept up while ascending and descending, and is usually given two "crackles" at a time."

Podisma glacialis canadensis E. M. Walker.

Six specimens; two males, four females. L'Anse et Vieux Desert Reservation, August 20, 31; September 4 and 5 (swamp, in thicket, on hazel bush).

"While beating some bushes in a ditch, on August 31st, I took two specimens of this species; returning to the same place the following week, I succeeded, with some difficulty, in taking a few more. They seemed to be in this locality only, and were there restricted to certain bushes. Besides those I took from the ditch, I took one specimen from a clump of raspberry vines; all the rest were beaten from clumps of hazel bushes, which are scattered through the high pastures. I beat each bush heavily, and in this way probably took a good share of the specimens stirring so late in the season. I took but one specimen without the net; this was a large female which I espied sunning itself on one of the topmost leaves of a hazel bush. It clasped itself tightly to the leaf, with the hind legs drawn down closely to the body and the antennæ held motionless. In this posture it was so well protected that I would never have seen it had I not picked a *Melanoplus* off a neighboring leaf, and, in so doing, almost touched it, causing it to move slightly. I took it in my hand, but hardly any effort was made to escape, and it clung firmly to my finger, and when touched shrank sideways in a peculiar manner. Owing to the fact that I did not beat the bushes in this vicinity before August 31st, it seems probable that *Podisma* had been there in perhaps greater numbers than I found it, for all other forms of Orthoptera appeared long before this date.

"Coloration of ♂.—All the colors and markings were very bright; deep emerald green appearing almost translucent, back purplish brown with a median chain of cream-colored marks.

"The males are active jumpers, easily springing from one part of the bush to another. They were quickly on the alert, but trusting to their very protective coloration they would not not jump till almost touched by the net.

"General color of ♀.—Clear dull grass green, the exact shade of the cloth of a billiard table."

These specimens agree very well with three representatives of this race from North Bay and North River, Ontario, received from Mr. Walker. They are quite distinct from *P. g. variegata*, which is readily separated by the characters given by Walker. It is, of course, of rather questionable importance to name a form like *canadensis*, which is a logical intermediate between the two extremes of the species, but in view of the distinct geographic ranges of the three races, as at present understood, it is probably the most convenient.

Melanoplus islandicus Blatchley.

Five females. Pequaming, July 16 (hemlock woods); August 21 and 28. Baraga Co., August 30 (woods).

"Very scarce. Specimens taken in damp woods among dead leaves, marsh grasses and ferns."

These specimens agree very well with a female individual from De Grassi Point, Ontario.

Melanoplus huroni Blatchley.

Three specimens; two males, one female. Pequaming, July 2 and 4. Foot of Point Abbaye, July 24 (huckleberry barrens).

Blatchley found this species in wild red raspberry tangles on La Salle Island, Lake Huron, Michigan.

Melanoplus extremus (Walker).

Seven specimens; two males, five females. Pequaming, July 2, 4 and 9; August 18.

"Very scarce. A few specimens taken in early July. They were all taken in the same clearing where I took so many *Mecostethus* in August, but with the other *Melanopli* they were all captured in the higher part of the clearing where the grass was short. They were, of course, unable to fly and seemed very poor at jumping."

One male belongs to the long-winged form (*scandens* Scudder) and the remainder to the short-winged type. This single specimen is the only one taken as late as August 18.

Melanoplus fasciatus (Walker).

One male. Pequaming, July 18.

This specimen belongs to the long-winged form (*volaticus* Scudder).

Melanoplus femur-rubrum (De Geer).

Thirty-eight specimens; fifteen males, twenty-three females. Pequaming, July 5, 6, 10, 18, 22, 31; August 12, 16, 21, 25, and 31 (woods, meadow). Baraga Co., July 10, August 2 (meadow).

Melanoplus atlanis (Riley).

Seventeen specimens; seven males, ten females. Pequaming, July 10, 31; August 1, 5, 6, 8, 20, 21 and 31; September 6 (meadow). Baraga Co., July 22 (barrens near marsh), August 20 (road along lake shore).

"This species closely resembles *M. femur-rubrum* in almost every respect. They were to be found all of the time I was in Pequaming this season (from July 1st to September 8th), being most plentiful toward the end of July. This species was very abundant among driftwood along the lake shore at the edge of the marsh; in midsummer they were there by the hundred. I noticed that, when alarmed, they frequently sprang or flew out over the lake, where, falling in, they quickly propelled themselves to shore."

Melanoplus luridus (Dodge).

Nine specimens; one male, eight females. Pequaming, July 18 (shore), 22; August 16 (meadow), September 3. Brulé on mainland opposite Pequaquawaming Point, along shore of Keeweenaw Bay, July 22.

These specimens are much darker than individuals from De Grassi Point, Ontario, but otherwise identical. I have followed Blatchley (Orth. of Ind., p. 325) in considering *luridus* and *collinus* as the same species. The evidence given is so strong that there is no alternative.

Melanoplus femoratus (Burmeister).

Forty-seven specimens; twenty-two males, twenty-three females, two nymphs. Pequaming, July 9, 11 (meadow), 12, 18 (edge of tamarack swamp, on shore), 20 (meadow), 23 (meadow), 25 (meadow), 26 (woods on shore, road along

lake shore, woods near marsh), 27, 31; August 1, 5, 6, 9, 9, 16 (meadow), 21 and 31.

"This species did not appear till about the middle of July. They were to be found most plentifully in fields of tall grass, but in one spot among the driftwood at the foot of "The Point" I found a colony, restricted to a small area but containing many specimens. The males fly well, jumping up with alacrity, but never fly more than fifteen to twenty feet; the females also fly, but are very clumsy."

These specimens have the posterior tibiæ uniformly blood red, varying slightly in intensity, thus placing them in *femoratus*. The form of the cerci is also that figured by Scudder as typical *femoratus*. Personally I believe *femoratus* and *bivittatus* to be geographic forms of the same species, very closely related, but still typical of each other over large areas.

TETTIGONIDÆ.

Scudderia pistillata Brunner.

Thirty-five specimens; twenty-seven males, seven females. Pequaming, August 20 (road along lake), 21 (meadow), 31; September 5 and 6. Baraga Co., August 21 (meadow), 30 (woods); September 5 (on hazel).

"I heard the first Katydid about the 12th of August, and as this is the only large Locustid found in this region I knew what species was producing the sound; before this date there was no insect which made a loud noise at night, now in the evenings "zikk-zikk-zikk-zikk" "zikk-zikk-zikk-zikk" could often be heard. A week later they were plentiful, and in the meadows and pastures their daytime note of "zzikk" was to be heard on all sides. In spite of the cold weather before I left, I found them as plentiful as ever on the last day on which I collected, and on the very cold days before that they were stirring, and several specimens were taken. Having found that they preferred the tops of bushes, where they could sun themselves, eat and stridulate, I found them easy to capture, for approaching slowly and cautiously, one could usually get within a few feet of the musician before it took alarm and ceased its music. I took numbers while beating the bushes

for *Podisma* and other insects. I captured a few specimens of *Scudderia* in the grass on July 3d, when they were smaller than a Tettigid."

Xiphidion fasciatum (De Geer).

Eighty-nine specimens; forty-four males, forty-five females. Pequaming, July 21, 22; August 1 (meadow), 5 (swamp, meadow), 9, 12 (meadow), 14, 15, 21, 25 and 31; September 2, 5 and 6. Baraga Co., August 21 (meadow and swamp).

"First mature specimens seen on August 1st. After this date they were very plentiful in all marshy places where there was tall grass, excepting in the great marsh—there, for some reason, none were to be found. The note produced by the males is high pitched but pleasing; it was very faint, and could be heard only as a continuous undertone in Nature's great fall orchestra."

Several specimens possessed wings and tegmina of unusual length when compared with the commoner type.

Ceuthophilus terrestris Scudder.

Ten specimens; eight males, two females. L'Anse et Vieux Desert Reservation, July 15, 26, 27; August 19, 31.

"On the 15th of July, under the stones about the Indian war-dance ground, I took nineteen specimens of this species, most of which were full grown. They were good jumpers, but the majority relied on their protective coloration, and remained motionless when the stone under which they were was turned over. They were to be found only under the large flat stones over the graves, which are noticeable now only by slight depressions about the war-dance circle. Their color was clear shiny brown, which blended perfectly with their surroundings."

GRYLLIDÆ.

Nemobius fasciatus (De Geer).

Sixty-seven specimens; thirty males, thirty-seven females. Pequaming, July 18, 31; August 1 (swamp), 5 (swamp), 6, 8 (meadow), 9 (swamp), 12 (meadow), 16 (meadow), 29 and 31; September 6. Brulé on mainland opposite Pequaquawaming Point, July 22. Baraga Co., August 30 (woods).

"Common almost everywhere except in the woods. After August 1st the mature specimens were most plentiful, especially in meadows and damp places, and their "creeeeeeeeeeee" or "creee-creee-creee-creee" could be heard on every side."

Of the above-mentioned series but four specimens, two males and two females, belong to the long-winged type. As is usual in this species, a great amount of color variation is noticed in the individuals examined.

Gryllus pennsylvanicus Burmeister.

Fifty-six specimens; thirty-five males, twenty-one females, one nymph. Pequaming, July 3, 18, 22, 28 (in decayed animal), 28 and 31; August 4, 12 (meadow), 14 (meadow), 21, 29, 30 and 31; September 5. Baraga Co., August 22, September 1 (meadow).

"This species was common under stones in fields and pastures. I found them particularly common under the stones scattered over the lumber mill sawdust pile. There were usually one male and one or two females under each suitable stone, but under one large stone I discovered four males and as many females. Their high, shrill chirping was constant, and could be heard at quite a distance from the sawdust pile. I have found the snake *Storeria occipitomaculata* under the same stone with a pair of these crickets. One day I came upon two males waging war under the edge of a stone. They were facing each other and, with wing covers half raised, one kept up a continuous whirring sound, sometimes rising in volume to a chirp. The other responded with a succession of faint chirps. They continued to edge around each other for several minutes, but I was obliged to leave and was unable to witness the outcome of the struggle."

The males in this series have the tegmina, almost without exception, solid blackish; while the females present all types from a blackish tegmen with a slight brown humeral vitta, to those with the whole organ considerably suffused with dull ochraceous. The latter type of coloration will be seen to approach *luctuosus*, but the smaller size and shorter ovipositor separate it from that form.

List of the Tabanidae (Horse-flies) of North Carolina.

By C. S. Brimley and Franklin Sherman, Jr.,
Raleigh, N. C.

The present list is based upon collections made by the authors, for the most part in the last two years. The determinations have been made by Prof. James S. Hine, of Ohio University, to whom the authors are greatly indebted for this aid. The two species *Chrysops brimleyi* and *C. fulvistigma* were described by Prof. Hine in Canadian Entomologist, February 1904, vol. xxxvi, p. 55, from specimens sent him by the senior author.

As both the authors live at Raleigh, this locality has been more thoroughly worked than any other, but to a greater or less degree collecting has been done in this family in various localities from the seashore to an altitude of 4000 feet in the western part of the State. The credit for the very complete Raleigh records and notes on the comparative abundance of the species is due mainly to the senior author, whose work is confined principally to this locality, while most of the records for other localities is due to the junior author, whose duties give opportunity for work in various other localities.

All the species listed, with the exception of *Tabanus allynii*, have been actually taken by us, and that species is included on the positive record that it is known to occur in this State (Can. Ent., vol. xv, 1883, p. 110). Indeed, North Carolina is the type locality for this species.

Except when otherwise stated, specimens are in the collection of the senior author, or of the N. C. Department of Agriculture, in charge of the junior author.

In nomenclature we have adopted the generic sequence usually recognized, but under the genera the species are arranged alphabetically.

The letters in parentheses immediately following the name of a locality denote its general position in the State; thus, the position of Raleigh, which is near the eastern border of the central portion of the State, is denoted by (E. C.).

1. **Chrysops brimleyi** Hine.

This species is described as new by Prof. James S. Hine in Can. Ent. for Feb. 1904, vol. xxxvi, p. 55, from specimens sent him by Mr. Brimley, for whom it is named. Specimens in collection of Prof. Hine.

Raleigh (E. C.). Late April and early May 1903; common,—a number taken; also taken in 1902; C. S. Brimley.

2. **Chrysops callidus** Osten Sacken.

Raleigh (E. C.). Abundant in its season. May 7 to July 17, 1902; C. S. Brimley. May 24, 1902; F. Sherman.

3. **Chrysops celer** Osten Sacken.

Raleigh (E. C.). Not common. May 7, 1902; May 13, 1903; C. S. Brimley.

5. **Chrysops flavidus** Wied.

Raleigh (E. C.). Abundant. May 20 to July 17, 1902; C. S. Brimley.

Beaufort (E.-coast). June 1, 20, 1903; F. Sherman.

5. **Chrysops fugax** Osten Sacken.

Only the one record. Specimens in collection of Prof. Hine.

Raleigh (E. C.). May 15, 1903; C. S. Brimley.

6. **Chrysops fulvistigma** Hine.

This species is described as new by Prof. James S. Hine in Can. Ent. for Feb. 1904, vol. xxxvi, p. 55, from two females sent by Mr. Brimley. No others taken. Specimens in collection of Prof. Hine.

Raleigh (E. C.). July 17, 1902; July 15, 1903; C. S. Brimley.

7. **Chrysops lugens** Wied. (— **C. morosus**).

Raleigh (E. C.). Common. May 20 to July 17, 1902; C. S. Brimley. July 2, 1903; F. Sherman.

Blowing Rock (W. 4000 feet.) June 27, 1901; F. Sherman.

8. **Chrysops mœchus** Osten Sacken.

Raleigh (E. C.). May 2, 7, 1902; common in April; also May 13, 22, 1903; C. S. Brimley.

Winston (C). August 4, 1903; S. W. Foster.

9. **Chrysops niger** Macq.

Raleigh (E. C.). May 2, 7, 1902; common in April; also May 13, 22, 1903; C. S. Brimley.

10. **Chrysops obsoletus** Wied.

Raleigh (E. C.) Common. May 26 to July 31, 1902; C. S. Brimley. July 2, 3, 1903; F. Sherman.

11. **Chrysops pudicus** Osten Sacken.

Only one record. Specimen in collection of Prof. Hine.

Raleigh (E. C.). July 17, 1902; C. S. Brimley.

12. **Chrysops univittatus** Macq.

Raleigh (E. C.). Common. May 7 to July 31, 1902; in 1903 to September 3d; C. S. Brimley.

Clayton (E.). May 22, 1902; F. Sherman.

Greensboro (C.). August 25, 1902; F. Sherman.

13. **Chrysops vittatus** Wied.

Raleigh (E. C.) The most abundant of the genus in late summer. May 26 to July 21, 1902; C. S. Brimley. August 19, 1902; C. O. Houghton.

Beaufort (E.-coast). June 11, 18, 1903; F. Sherman.

Southern Pines (S. E.). August 15, 1902; C. O. Houghton and F. Sherman.

14. **Diachlorus ferrugatus** Fabr.

Only one record. Specimen in collection of Prof. Hine.

Lumberton (S. E.). July 3, 1903; F. Sherman.

15. **Tabanus allynii** Marten.

This species has not been collected by us, but is included, as North Carolina was given as the type locality by Marten in the original description (Can. Ent., vol. xv, 1883, p. 110.

16. **Tabanus americanus** Forst.

This species does not seem to be at all common, although it has been taken in several widely separated localities.

Raleigh (E. C.). June 19, 1902; C. S. Brimley. August 18, 1902; F. Sherman.

Beaufort (E.-coast). Summer of 1903. sent by Mr. Gudger, of Marine Biological Laboratory.

Brinkleyville (N. E.). August 6, 1902; F. Sherman.

Highlands (extreme S. W.; 3000 feet). August 1903; S. W. Foster.

17. **Tabanus atratus** Fabr.

Raleigh (E. C.). Rather common in late summer. June 17 to July 29, 1902; August 24, September 7, 14, 1903; C. S. Brimley.

Thomasville (C.). September 2, 1902; F. Sherman.

18. **Tabanus carolinensis** Macq.

Raleigh (E. C.). Not common. May 2, 13, 1902; C. S. Brimley. Specimen in collection of Prof. Hine.

19. **Tabanus cerastes** Osten Sacken.

Raleigh (E. C.). May 29, June 19, 1903; C. S. Brimley.

Blowing Rock (W.; 4000 feet). August 29, 1902; F. Sherman.

20. **Tabanus cinctus** Fabr.

Only one record of this rare and handsome species.

Wilkesboro (W.; about 2000 feet). June 21, 1901; F. Sherman.

21. **Tabanus coffeatus** Macq.

Only one record. Specimen in collection of Prof. Hine.

Raleigh (E. C.). July 23, 1902; F. Sherman.

22. **Tabanus costalis** Wied.

Raleigh (E. C.). June 9, 1903; C. S. Brimley.

Beaufort (E.-coast). Abundant, sharing with *T. nigrovittatus* in numbers. August 9, 11, 1902 (2 ♂♂); F. Sherman. June 15, 1903 (6 ♀); June 20, 1903 (♂); F. Sherman.

23. **Tabanus fronto** Osten Sacken.

Raleigh (E. C.). Abundant in late summer. July 23 to September 14, 1903; C. S. Brimley. July 15, 24, 1902; F. Sherman.

24. **Tabanus fulvulus** Wied.

Raleigh (E. C.). Common. June 21, 1902; May 28, June 8, 9, 1903; C. S. Brimley.

25. **Tabanus giganteus** De Geer.

Raleigh (E. C.). Seems to be rare. August 24, 1903; C. S. Brimley.

Oakdale (C.). August 22, 1902; F. Sherman.

26. **Tabanus gracilis** Wied.

Raleigh (E. C.). July 8, 1903; C. S. Brimley.

Princeton (E.). July 28, 1902; F. Sherman.

Brinkleyville (N. E.). August 6, 1902; F. Sherman.

27. **Tabanus lineola** Fabr.

Raleigh (E. C.). Common. June 19 to July 3, 1902; C. S. Brimley.

Beaufort (E.-coast). June 20, 1903 (♂); F. Sherman.

Lumberton (S. E.). July 3, 1903; F. Sherman.

Red Springs (S. E.). June 21, 1902; F. Sherman.

28. **Tabanus longus** Osten Sacken.

Widely distributed, at least in the eastern half of the State, although not known to be common.

Raleigh (E. C.). August 24, 1903; C. S. Brimley.

Lumberton (S. E.). July 3, 1903; F. Sherman.

Princeton (E.). July 28, 1902; F. Sherman.

Brinkleyville (N. E.). August 6, 1902; F. Sherman.

Oakdale (C). August 22, 1902; F. Sherman.

29. **Tabanus melanocerus** Wied.

Raleigh (E. C.). Common. June 7 to July 3, 1902; C. S. Brimley.

Andrews (extreme S. W.). July 24, 1901; F. Sherman.

30. **Tabanus molestus** Say.

Raleigh (E. C.). Common. June 7 to July 20, 1902; June 8, 1903; C. S. Brimley.

Beaufort (E.-coast). Summer of 1903; sent by Mr. Gudger, of Marine Biological Laboratory.

Boomer (W.; 2000 feet). June 24, 1901; F. Sherman.

31. **Tabanus nigrescens** Pal. Beauv.

Raleigh (E. C.). July 10, 1902; C. S. Brimley.

Greensboro (C.). August 1902; F. Sherman.

32. **Tabanus nigrovittatus** Macq.

Prof. Hine informs us that this is a coast species, which is in accord with our only records.

Beaufort (E.-coast). Abundant, sharing with *T. costalis* in numbers. June 13, 15, 1903 (6 ♀); F. Sherman.

33. **Tabanus pumilis** Macq.

Raleigh (E. C.). May 7 to July 7, 1902; C. S. Brimley.
Beaufort (E.-coast). June 11, 18, 1903; F. Sherman.

34. **Tabanus recedens** Walker.

Only one record. Specimen in collection of Prof. Hine.
Maxton (S. E.). May 31, 1902; F. Sherman.

35. **Tabanus stygius** Say.

Raleigh (E. C.). This is the common large species that settles on the collector in summer in low grounds in this locality. May 30 to July 10, 1902; C. S. Brimley.

36. **Tabanus trimaculatus** Pal. Beauv.

Raleigh (E. C.). Common. June 7 to July 23, 1902; C. S. Brimley.

37. **Tabanus turbidus** Wied.

Only one record. Specimen in collection of Prof. Hine.
Princeton (E.). July 28, 1902; F. Sherman.

38. **Tabanus variegatus** Fabr.

Raleigh (E. C.). September 2, 26; October 2, 29, 1903; C. S. Brimley.
Snow Camp (C.). August 22, 1902; F. Sherman.
Greensboro (C.). August 1902; F. Sherman.

39. **Tabanus weidemanni** Osten Sacken.

Only the one record given below. Specimen in collection of Prof. Hine.
Boomer (W.; 2000 feet). June 24, 1901; F. Sherman.

40. **Tabanus** sp.

A species of *Tabanus* distinct from the others here mentioned was collected at *Raleigh* (E. C.). September 7, 1902, ♂; September 1903; by C. S. Brimley. The specimen is in the collection of Prof. Hine, and has not yet been definitely identified.

Some Little-known Bees of the Genus Colletes.

By T. D. A. Cockerell.

The following table and notes are based on specimens in the British Museum, the species of F. Smith being represented by the types, and those of Spinola apparently by cotypes.

A.—Abdomen not at all blue or green.

Large, *Andrena*-like, thorax with conspicuous ochreous or fulvous pubescence; abdomen without conspicuous continuous hair-bands, or with none . . . . . 1.

Smaller, of ordinary *Colletes*-form . . . . . 3.

1. Malar space longer than broad; size larger than the others; stigma practically obsolete; second recurrent nervure with only a gentle single curve (Chile).
nigriventris Sm. (probably same as **nigroventris** Spinola).

Malar space much broader than long; stigma distinct . . . . . 2.

2. Abdomen distinctly subfasciate; second recurrent nervure with a strong double curve; second and third submarginal cells about equally broad above . . . . . **thoracica** Sm. ♀.

Abdomen not fasciate; second recurrent nervure with a slight double curve; second submarginal cell extremely broad, much broader than third . . . . . **intricata** Sm. ♀.

3. First abdominal segment with strong punctures; disc of thorax with ochraceous or fulvous hair, not at all mixed with black; abdomen with broad continuous hair-bands . . . . . 4.

First abdominal segment without strong punctures; disc of thorax with dull white or griseous hair, mixed with black; abdomen only subfasciate . . . . . 5.

4. Larger; stigma dark brown; thoracic pubescence short and fulvous. **perplexa** Sm. ♀.

Smaller; stigma orange-fulvous; tarsi light red . **mandibularis** Sm. ♂.

5. Abdomen obconical, shining; stigma ferruginous; hair of face dull white . . . . . **nitida** Sm. ♀.

Abdomen broader and duller; stigma very dark; hair of face longer and with much black at sides . . . . . **grisea** Sm. ♀.

B.—Abdomen blue or green.

Dorsum of thorax covered with short, dense, very bright red hair; abdomen brilliant dark purple-blue; malar space fairly large, but broader than long; stigma distinct but small; second recurrent nervure with a strong double curve (Mendoza, Argentine). **bicolor** Sm. ♀.

Dorsum of thorax without such red hair . . . . . 1.

1. Abdomen bluish green; malar space longer than broad; stigma small but distinct; second recurrent nervure with a double curve (Chile) . . . . . **albopilosa** Spinola.

Abdomen brilliant dark blue, shot with purple; hair of thoracic dorsum entirely black; malar space much broader than long; stigma small but distinct, second recurrent nervure only slightly curved (Chile).

cyaniventris Spinola (syn. of **cyanescens** Haliday).

The following additional details will be useful:

C. ursina Sm. ♀. Columbia. Close to *C. grisea*. Malar space very large, much longer than broad; hair of head and thorax black and grey mixed; stigma small, piceous; second recurrent nervure with a strong double curve.

C. nitida Sm., *C. thoracica* Sm., *C. mandibularis* Sm. (♂), and *C. perplexa* Sm., all have the malar space short, at least twice as broad as long. *C. grisea* Sm., has it large, not greatly broader than long. *C. intricata* Sm., has it fairly long, but still much broader than long.

Additional Dragonfly (Odonata) Records for Western Pennsylvania.

By E. B. Williamson.

The following list of dragonflies is based on a collection from Sandy Lake, Mercer County, Pennsylvania, made by Dr. D. A. Atkinson, to whom I am indebted for the specimens. Dr. Atkinson writes me that "several coal mines drain into Sandy Lake, and the water from these has killed off (or driven away) all the fish and turtles. In adjoining swamps I took a few turtles and a number of snakes. I saw a frog, *Rana catesbiana*, catch and eat a small blue dragonfly (*Enallagma hageni ?*)."

"Man marks the earth with ruin," destroying native floras and faunas, especially in mining, manufacturing and oil-producing regions, and the captures of Odonates made by Dr. Atkinson are here recorded in the belief that at some future time, more than at present, they will be of value to the student of geographical distribution.

The dragonfly fauna changes quickly with changed envir-

ronment. The partial drainage of a swamp may result in the disappearance of certain species; the opening of a gravel-pit or the making of an artificial lake in a park may result in the almost immediate appearance of species hitherto unsuspected in the neighborhood. Every stream, bayou and ox-bow bend, every lake, pond, marsh and artificial body of water may have its peculiar species, all trace of which will sooner or later be lost by natural topographical and ecological evolution or the substitution of artificial conditions, unless some printed record be made of their occurrence. For this reason more collecting and more lists are desirable. Especially is this true in western Pennsylvania.

Dr. Atkinson collected at Sandy Lake, July 8–10, 1904. Species designated * are additions to the list of dragonflies observed in western Pennsylvania. See ENT. NEWS, March, 1902, pp. 65–70, and April, 1902, pp. 108–113. Seventy-two species of Odonates have now been observed in this region.

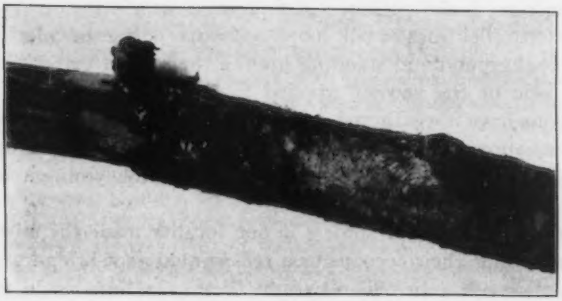
1. *Lestes rectangularis*, several specimens of both sexes.
*2. *Argia tibialis*, two males, one female in the collection.
3. *Chromagrion conditum*, three males.
4. *Nehalennia irene*, one of each sex.
5. *Amphiagrion saucium*, one male.
6. *Enallagma hageni*, thirteen males.
7. *Cordulegaster diastatops*, one male. In the ENT. NEWS, April 1902, p. 110, No. 41, *Cordulegaster maculatus* is an incorrect determination. The specimen recorded is *C. diastatops*.
8. *Leucorhinia intacta*, four females.
9. *Sympetrum rubicundulum*, several of each sex.
10. *Sympetrum obtrusum*, three males.
*11. *Libellula quadrimaculata*, one male.

The Egg Cocoon of the Triangle Spider.

BY THEO. H. SCHEFFER, Manhattan, Kan.

From the evidence at hand it seems that nothing has ever been published concerning the cocooning habits of that interesting little orb weaver, the Triangle Spider (*Hytiotes cavatus*). The species was first described by Hentz under the name

Cyllopoda cavata, a single specimen furnishing the characters for the description. Later, 1875, Prof. G. B. Wilder of Cornell University published in the *Popular Science Monthly* a more extended description of the spider, its snare, and peculiar



Photograph by J. H. Comstock.

method of manipulating the same, referring to the species as *Hyptiotes americanus*. In this article appeared an illustration showing a tiny white cocoon suspended by two or three slender threads from a small branch of evergreen. The author thought it might be the cocoon of *Hyptiotes*, and suggested further observation to verify the conclusion.

It was my good fortune the past year, during the progress of a series of investigations begun at Ithaca, N. Y., on the cocooning habits of spiders in general, to settle the question finally, though not in favor of the cocoon referred to above. That probably belongs to one of the smaller Theridiids. Two females of *Hyptiotes*, imprisoned in glass tubes the first week in September, furnished the key to the situation by spinning a cocoon each on the cork stopper. After that, by careful search, any number could be found in the field, though nearly all noticed for a week or so were old cocoons of the previous season. They are usually located on the dead branches of pine just below a bud, where by reason of their protective coloration they are not easily seen. They are small plano-convex objects, elongate oval in outline, and resembling somewhat certain scale insects. The average length is from five-sixteenths

to three-eighths of an inch, and the width a little over one-eighth of an inch. In texture they are paper-like; in color they differ scarcely at all from the dull gray and brown of the twig. Their most distinctive feature, noticeable only on close inspection, is the presence of fine cross-striations due to very many parallel lines of silk loops or points, darker in color than the background and standing up like the pile on velvet. The flat side of the cocoon, applied to the twig, is white. Old cocoons have a weathered appearance and show little trace of the striation mentioned above. Each has also, near the down twig end, a small opening through which the young spiders escaped.

Quite a number of spiders in one locality made the mistake of attaching their cocoons to a red-painted foot-bridge across a small creek. In this situation their gray tints made them very conspicuous, in fact, noticeable at some distance.

Each cocoon contains from five to twelve pale buff eggs which adhere slightly, although they cannot be called agglutinate. A few freshly spun cocoons were found during the first half of September, but it was not until some two or three weeks later that the majority of the females laid their eggs. Upon the advent of cold weather the eggs were still unhatched, so it is likely that they remain in that condition until spring.

Two New Species of North American Stenopelmatinae (Orthoptera).

By James A. G. Rehn.

Pristoceuthophilus marmoratus n. sp.

Type: ♂; Mountains near Claremont, Los Angeles Co., California. (C. F. Baker). Collection Academy Natural Sciences, Phila.

Allied to *P. rhoadsi* Rehn, from Uruapan, Mexico (Trans. Amer. Ent. Soc., xxix., p. 17), but differing in the slenderer antennæ, the strongly tuberculate abdomen, and the slenderer posterior tibiæ and tarsi.

Size rather small, form elongate fusiform, the dorsum very distinctly arched. Head with the vertex declivent, the acute fastigial process directed forward and downward, somewhat depressed, apex rather blunt; interspace between the eyes broad; eyes sub-trigonal, not prominent; antennæ approximately twice as long as the body; fifth palpal joint slightly longer than the third, slender, the apical two-thirds with the axis at an obtuse angle with the basal third. Pronotum strongly convex in transverse section; anterior and posterior margins truncate, lateral lobe with the inferior margin subtruncate. Mesonotum and metanotum with their exposed portions subequal; posterior margins subtruncate; lateral lobes with the inferior margin obliquely truncate, extending considerably below the level of the pronotum; surface of the mesonotum almost as smooth and glabrous as the pronotum, metanotum with the anterior portion glabrous, but bearing a transverse series of numerous low obscure tubercles. Abdomen somewhat compressed; posterior portion of the ventral surface of each segment ornamented with transverse series of irregularly sized tubercles, more distinct and more numerous than on the metanotum; cerci rather short, hardly as long as the subgenital plate; subgenital plate broad, apically with two distinct carinæ extending from the base of the styles half way to the base, apical margin broadly and shallowly emarginate; styles thick, short, apically acute. Anterior femora a third again as long as the pronotum, anterior margin with a single pre-apical spine, posterior margin unarmed. Median femora slenderer than the anterior but of the same length, anterior margin with a single pre-apical spine, posterior margin with a slender genicular spine, a distinct pre-apical spine, and several smaller depressed spines. Posterior femora about as long as the head and body united, considerably inflated, slightly more than three times as long as broad, external inferior margin very minutely serrulate; internal inferior margin very distinctly serrulate, except in the genicular portion; tibiæ about one-tenth longer than the femora slightly sinuate in the proximal half, four pair of spurs present, minor serrations distinct and sharp, calcaria with the medium pair over twice the length of the others, under surface with six paired adpressed spines on the apical section; metatarsi slightly longer than the remaining tarsal joints combined, second over twice the size of the third.

General color ochraceous and ochraceous-buff marbled and finely sprinkled with blackish brown; posterior femora with the scalariform markings distinct, and the posterior tibiæ rather imperfectly annulate.

MEASUREMENTS.

Length of body	10.	mm.
Length of pronotum	3.5	"
Greatest width of pronotum	3.6	"
Length of posterior femora	9.8	"
Length of posterior tibiæ	10.5	"

Phrixocnemis inhabilis n. sp.

Type: ♀ ; St. Louis, Missouri. November 15, 1903. Collection of Morgan Hebard.

Allied to *P. bellicosus* Scudder from Colorado, but differing chiefly in the somewhat larger size, stouter antennæ, shorter posterior femora, and more regularly disposed spurs of the posterior tibiæ.

Size medium, form obese, surface smooth. Head short and broad; vertex depressed, subvertical; interspace between the eyes very broad; eyes roughly diamond-shaped, distinctly projecting; palpi with the fifth joint very slightly longer than the third, curved, excavated below for a slight distance from the tip; antennæ about equal to the body in length. Pronotum slightly compressed, rotundato-arcuate in transverse section; anterior and posterior margins subtruncate, lateral lobes with the inferior margin truncate. Mesonotum and metanotum with the exposed portions subequal, posterior margins truncate; lateral lobes slightly deeper than those of the pronotum, inferiorly arcuate. Abdomen little compressed; supra-anal plate trigonal; cerci tapering, about half as long as the ovipositor; subgenital plate transverse, rotundate; ovipositor slightly arcuate, robust, regularly decreasing in width, slightly more than half the length of the posterior femora, apex obliquely truncate with the upper point produced into a distinct spiniform process, inner valves with five distinct apical hooks. Anterior femora slightly longer than the pronotum, inferior margins unarmed. Median femora bearing two to three spines on each of the inferior margins, no genicular spine present. Posterior femora about two-thirds the length of the body, moderately expanded, slightly more than three times as long as broad, genicular region not constricted, inferior margins moderately serrato-dentate, intervening sulcus broad; posterior tibiæ slightly shorter than the femora, moderately arcuate, four pair of strong spurs present, calcaria stout, those of the external face subequal, the internal face with the two superior ones subequal and considerably longer than the inferior one, inferior surface with an apical pair of adpressed spines, and a few inconspicuous scattered spinules; posterior metatarsi about equal to the fourth tarsal joint, second and third joints subequal.

General color ferruginous, the abdominal segments suffused with chestnut; eyes blackish.

MEASUREMENTS.

Length of body	11.5 mm.
Length of pronotum	4.3 "
Greatest width of pronotum	5.1 "
Length of posterior femora	8.2 "
Length of posterior tibiæ	7.2 "
Length of ovipositor	5.5 "

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., OCTOBER, 1904.

We are pleased to see the increased interest in entomology and the rapid progress being made in almost every way. Our subscription list has grown to such an extent this year as to make Vol. XV practically out of print. More people are taking up the study than ever before, and students and collectors are turning their attention to orders other than Lepidoptera and Coleoptera. The interesting and beautiful little Micro-Lepidoptera are receiving the attention they deserve, and monographs and revisions of some of the families are promised in the near future. The insects of economic importance are being studied in a more scientific way and everywhere the study is looked upon with more respect. The subject of insects as carriers of disease is one of the greatest subjects that confronts the medical man and the zoologist at the present time, and the good already accomplished is amazing and the future full of the brightest promise.

If some one would write a sketch of the progress of entomology since about 1860 it would undoubtedly be of great interest.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

DURING the summer Prof. H. F. Wickham made another collecting trip to the West. He visited chiefly the little known southern portion of Utah. He went to Utah Lake, Sevier Lake, and Little Salt Lake, in search of variations of *Cicindela echo*, and made large collections in the vicinity of St. George, Leeds and the Pine Valley Mountains.

DISPOSITION OF THE DE SELYS COLLECTION OF NEUROPTERA.—(We translate the following from the Compte Rendu of the meeting of the Entomological Society of Belgium, held May 7, 1904.) M. Severin announced to the meeting that the children of our lamented Honorary President, M. de Selys, have made a gift to the State Museum of the collections of Neuroptera of their father, containing the types of his descriptions and numerous types of older authors: Hagen, Latreille, Rambur, etc. M. Severin intends to entertain the Society with further details of this new addition to the national collections. The meeting received this communication with lively satisfaction, and M. Lameere proposed to direct the secretary to transmit to the de Selys family the thanks of the Society for this inestimable gift to the Museum of Natural History. The proposition was unanimously adopted. (Annales, Soc. Ent. Belg. xlviii, p. 180).

NESTS OF ANTHIDIUM ILLUSTRE Cress.—A clay bank at Denver, Colo., furnishes a veritable mine of interest and information for the entomologist. A number of species have been taken from it. A study of their habits, life histories, enemies, etc., would furnish a full summer's work and the information obtained fill a small volume. While collecting there three years ago I took a number of woolly nests which afterwards produced specimens of the above species.

A specimen with a nest was sent to Mr. Henry L. Viereck for determination. He says that the species is undoubtedly *A. illustre* though differing in maculation, and calls attention to the fact that this case supports the (as yet unproven) theory that all species of *Anthidium* are "cottoners," *i. e.*, use a cottony substance in constructing their nests.

A number of these nests were collected and were, apparently, built in deserted burrows of *Anthophora occidentalis* with which the bank is honeycombed. In color the nests were either white or brown, the white ones predominating. A microscopical examination shows that the former are constructed of the pile which covers the galls produced by *Trypeta bigeloviæ* which are abundant near the nesting place of the bee. The brown cells appear to be made from the pappus of some composite flower, the species of which we were unable to determine. The nests vary somewhat in form, but are usually cylindrical, about 20 mm. long and 8 mm. in diameter. They are placed end to end and commonly number two to four in a burrow.—S. ARTHUR JOHNSON.

EMPHYTUS GILLETTEI MacG. (Tenthredinidæ).—The following description, furnished by Prof. C. P. Gillette, was published in the report of the Colorado Agric. Experiment Station in December, 1902, page 13. It is reprinted here so as to make it more available for other workers.

Emphytus gillettei.—♀. Black, with the following parts rufous; the apex of the anterior femora, the anterior tibiæ and tarsi beneath, the apex of the middle femora, middle tibia and tarsi beneath, the posterior femora and tibiæ, and the basal segment of the posterior tarsi; with the following parts white: the tegulæ, the cenchri, the anterior trochanters at apex, the middle and posterior trochanters, and a transverse band on the base of the fifth abdominal tergum, slightly attenuated at middle; the stigma and wing veins dark brownish; the first submarginal cell more than twice the length of the second; the third segment of the antennæ slightly longer than the fourth; the clypeus roundly and deeply emarginate, the labrum filling the emargination and angulate at apex; the saw guides obtusely pointed at apex. Length 8 millimeters.—A. D. MACGILLIVRAY.

Entomological Literature.

THE HONEY BEE: ITS NATURAL HISTORY, ANATOMY AND PHYSIOLOGY. —By T. W. Cowan, F L. S., F. G. S., F. R. M. S., etc. Illustrated with seventy-three figures and one hundred and thirty-eight illustrations. London: Houlston & Sons, Paternoster Square.

This is an excellent little work of two hundred and twenty pages. It is well indexed and gives a valuable bibliography. It is a work that every one interested in bee culture should possess, and also one that would be of value to all students of general entomology who wish information about this interesting insect.

Doings of Societies.

At the meeting of the Feldman Collecting Social, held June 16th, at the residence of Mr. H. W. Wenzel, 1523 South 13th Street, Philadelphia, nine persons were present.

Mr. H. Wenzel showed *Lepturges regularis*, a rare Cerambycid, from Frankford, Pa. This is the first record of the species in this vicinity.

Mr. Daecke exhibited a species of the rare Dipterous family Acroceridæ, *Oncodes costatus*, which was reported as fairly abundant at Castle Rock, Pa., June 12th, by Mr. Wenzel.

Mr. Wenzel stated that he had taken four more specimens of *Cychrus elevatus unicolor* on Five Mile Beach, N. J., on May 30th. Specimens from this locality seem to form a distinct race. The peculiarity of a cychrus living on the low coast in contrast to the usual hilly situations was referred to.

Mr. Bland referred to the scarcity of burrowing beetles near English Creek, N. J. This he ascribed to the dry sandy soil of the region, which did not permit the insects to form permanent burrows. Discussed by Messrs. Wenzel, Bland and Daecke, who referred to the more or less permanent burrows of Hymenoptera in sandy places.

Mr. Bland referred to the absence of records of Coleoptera from Burlington County in the "Catalogue of Insects of New Jersey. He had taken *Tylophorus sellatus* and *Galerucella nymphæa* abundantly in that county recently.

Dr. Castle spoke of a recent trip to Virginia. Insects were very rare.

WILLIAM J. FOX, *Secretary.*

Minutes of meetings of Brooklyn Entomological Society, held at the residence of Mr. Geo. Franck, 1040 DeKalb Ave., Brooklyn, N. Y.

January 8, 1903.—Twenty-four persons present, the President in the chair. Officers elected for the ensuing year: *President*, John B. Smith; *Vice-President*, Edward L. Graef; *Secretary*, Archibald C. Weeks; *Treasurer*, Christopher H. Roberts; *Librarian*, Richard F. Pearsall; *Curator*, Geo. Franck.

Mr. Weeks read Captain Jonathan Carver's descriptions of the seven insects observed by him in his explorations in the vicinity of the Great Lakes in 1766, and designated by him as the "Silk-worm," "Tobacco-worm," "Bee," "Lightning Bug or Fire Fly," "Water Bug," "Horned Bug or Stag Beetle," and "Locust."

Mr. Charles W. Leng stated that he had examined a large series of specimens of the genus *Hippodamia* from the United States and had reached the conclusion that divisions based on maculation alone were unreliable and that in fact not more than six good species should be recognized north of Mexico. The variation in maculation is geographical rather than structural.

Mr. Wm. T. Davis reported the capture of *Homoglæa carnosa* Grote, and *Catocala herodias* Strecker at Lakewood, N. J.

Prof. Smith stated that *Cicindela lepida* also occurred in this

locality, a most unusual one for a species, whose normal habitat is the inner margin of ocean beaches. It is probable that at some remote period the beach line had extended inland to this point and as the waters receded this colony of beetles remained.

February 5, 1903.—Eighteen persons present, the President in the chair.

Mr. Wm. Beutenmüller was elected a member. Drs. Call and Love were elected members of the Executive Committee.

Discussion of Dr. Dyar's "List of North American Lepidoptera:" Messrs. Smith, Call, Franck and Weeks pronounced it, despite minor omissions, a monument indicative of the advancement of Lepidopterological science. Mr. Weeks compared Dr. Morris' check list, published forty years ago, which contained 1800 species, and his prediction that the number would eventually reach 3500, with the present work, which contained even 6000, with certainly many species yet to be added.

Prof. Smith presented a paper upon "Fossil Insects," illustrated by lantern slides, showing fossil remains of insects of all orders occurring in various strata of the tertiary and carboniferous ages. Insects at these remote periods were already well advanced in structure as well as of unusual size.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia, was held May 26th. In the absence of the Director and Vice-Director, Dr. D. M. Castle presided. Ten persons were present. Dr. Skinner spoke of the peculiar habitat and geographical distribution of *Pyrgus centaureæ*, and said a knowledge of its food plant and life history would be of great interest. Mr. Frank Haimbach exhibited some recent collections of Microlepidoptera. Mr. R. Godfrey reported taking *Elater sayi* and *Sphæridium scarabæoides* in the city limits. He was the first person to report the latter species in New Jersey. Dr. Calvert exhibited some rare and interesting Odonata. He said Mr. McLachlan had described a genus and species from an unknown locality. A specimen had subsequently been received in France from Chi-

riqui. A figure of this species is given in the Biologia Centrali-Americana. Mr. Underwood collected four specimens of this species, *Thaumatoneura inopinata*, in Costa Rica. Two specimens of a new species of the same genus, taken by Mr. Underwood, were also exhibited.

Aeschna sitchensis from Pequaming, Michigan, taken by Mr. Morgan Hebard, was also shown. This is the first record for the United States. *Cordulegaster sayi*, taken by Mr. Rehn, at Thomasville, Georgia, was new to the collection. The speaker also exhibited Riker mounts of Hemiptera, Diptera, and also some insects of economic interest. Mr. Rehn exhibited Orthoptera from Mexico, collected by various persons. Among them was a new genus and species of the family Pyrgomorphini, also *Tæniopoda picticornis*, and an allied species separated as *Burmeisteri*—they show great variation in color. A new species of the genus *Stypater* was shown, being the largest known species.

HENRY SKINNER, *Recorder.*

The September meeting of the Newark Entomological Society, was held on the 11th, with President Keller in the chair, and nine members present.

The minutes of the previous meeting were read and approved.

The resignation of Mr. R. Godfrey was read and accepted.

Messrs. Brehme, Doerfel and Kraemer, were appointed a committee of three to provide for suitable quarters, lunch and refreshments for a little "time" among the members, to be held October 9th, after the regular meeting, in honor of the twentieth anniversary of the Society's organisation. Mr. Wormsbacher volunteered to furnish the music.

Mr. Buchholz reported the capture of *Acronycta funeralis* in Elizabeth, May 8th, and the emerging of a ♀ of *Smerinthus jamaicensis* from among thirty pupæ of *S. geminatus*.

Mr. Eugene Winship, of Long Branch, N. J., was proposed for membership by Mr. Brehme.

After that, adjournment upon motion.

OTTO BUCHHOLZ, *Secretary.*

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Polistes.—I wish to correspond with entomologists all over the country who are willing to aid me in the study of this genus.—S. Arthur Johnson, Fort Collins, Colo.

Will exchange North American Lepidoptera for native, Exotic or European species. Send lists to Jos. H. Reading, 775 North Rockwell Street, Chicago, Illinois.

A full line of Arizona Coleoptera. Apply to agent, Mr. Chas. Palm, 172 East 64th Street, New York; Dr. R. E. Kunzé, Phœnix, Arizona, U. S. A.

Moths of Pennsylvania and New Jersey. The undersigned will give good exchange in cash or specimens for moths of Pennsylvania and New Jersey that are new to his collection. Send list of rare species only. Philip Laurent, 31 East Mt. Airy Ave., Philadelphia, Pa.

Native pupae for exchange, including *regalis, ceanothi, luna, calleta.* Native pupæ desired. W. T. Buxton, 17 Walter Street, Somerville, Massachusetts.

Lepidoptera. I have a few *luna* cocoons to exchange for *ceanothi* or pupæ of *Papilios* not found in this locality.—Miss Kate W. Strong, Setauket, Long Island, New York.

I have a few live pupæ of *Deidamia inscriptum* to exchange. I wish live pupæ of *Darapsa versicolor* and *Calasymbolus astylus.*—R. R. Rowley, Louisiana, Mo.

Megachilidae of the Americas wanted for study. Will exchange or purchase.—E. S. G. Titus, Div. Entom. Dept. Agric., Washington, D. C.

Wanted.—Copies of ENT. NEWS for January, 1903, Vol. xiv, No. 1.—Henry Skinner, 1900 Race St., Philadelphia, Penna

Lepidoptera.—*Papilio gundlachianus* for exchange.—Captain Wirt Robinson, Fort Caswell, North Carolina.

Wanted for Cash—Living cocoons or pupæ of Lepidoptera of U. S. A. W. T. Page, 6 Rylett Crescent, Shepherd's Bush, London, W., England.

Lepidoptera to exchange for specimens not yet in my collection. Send lists to Adolph Fischer, 502 School Street, Chicago, Ill.

Exchange.—Coleoptera in papers, with data. Will collect in this locality this season. Send lists.—Rev. J. C. Warren, Argentine, Kans.

Have for exchange.—Named species of Coleoptera, named and unnamed species Lepidoptera, Hymenoptera, Diptera, Neuroptera and Odonata of this locality, for named species of U. S. and Canada.—A.W. Andrews, 180 Helen Ave., Detroit, Mich.

Wanted.—Material for the study of the hybrid or polymorphic butterflies of the genus *Basilarchia*, including larvæ or pupæ of *arthemis* or *astyanax*, imagos of *proserpina* or *arthechippus*, or any specimens showing unusual characters. Liberal exchange. Specimens retained will be deposited in Museum of Comparative Zoology.—W. L. W. Field, Milton, Mass.

Fertile ova of *Attacus yama-mai, Rhodia fugax, Calligula japonica* and *cecropia-ceanothi* hybrids for good exchange; will give cash or exchange for pupæ of *angulifera* and *ova* of *H. nevadensis.*—Jas. Mitchell, 212 Indiana Trust Building, Indianapolis, Indiana

Cicindela wanted (Henshaw Numbers 19 to 32b inclusive), Coleoptera for exchange. Will collect in all Orders. Write before collecting.—V. E. Shelford, Zoology Building, Univ. of Chicago, Chicago, Ill.

Wanted—Insect galls and host plants for the study of distribution. Will exchange specimens.—Mel T. Cook, Greencastle, Ind.

Butterflies.—Will collect in this vicinity the coming season in exchange for named specimens in papers or expanded, found in other localities.—C. E. Montgomery, 10 Cabot St, Portsmouth, N. H.

Wanted.—Fertile eggs of *Citheronia regalis* and *Basilana imperialis*. Will pay cash for twenty-four of each.—Phineas Whiting, 106 Fairmount St., Lowell, Mass.

I have *Triptogon occidentalis, modesta, Sphinx chersis, Amp. versicolor, Catocala relicta* var. *bianca, phalanga, lacrymosa, frederici* and pupæ of *P. astylus* in exchange for others of same genus or for small white roses.—Chas. F. Timm, 131 Ralph St., Brooklyn, N. Y.

Orthoptera.—Determined Colorado species to exchange for species not represented in the Collection here. C. P. Gillete, Ft. Collins, Colo.

Wanted.—*Papilios* of the world. Must be perfect. Send list and state what you wish in exchange. C. F. Groth, 141 E. 40th St., New York.

Wanted in southern and western United States correspondents who will collect *Cicindela* in exchange for named Coleoptera of Mexico, South and Central America, Europe and Australia. Write at once. Zoological Museum, 37 Zoological Building. University of Chicago, Chicago.

Insects of all orders, chiefly from Kansas, Colorado, New Mexico and Arizona, for North Amercan species not in my collection. List of duplicates and desiderata on application. F. H. Snow, Lawrence, Kansas. (Prof. Systematic Entomology in the University of Kansas.)

Wanted, to complete files: Illinois State Laboratory Natural History, Bulletin, Vol. i, Nos. 3 and 4; Vol. iv, articles, 9, 14 and 15; Vol. v, articles 1 and 6. Many valuable exchanges to offer in different groups and subjects. James G. Needham, Lake Forest, Ill.

Wanted, for cash or exchange.—Fitch's 4th Report on Insects of New York; Smith's Reports on New Jersey Insects for 1889 and 1892; Bulletins 9 and 33 (old series), Parts iv and vi, Bibliography of Economic Entomology, Div. of Ent, U. S. Dept. Agr.; 15th, 16th, 18th and 19th Reports on Illinois Insects.—W. E. Britton, Agr. Exp. Sta., New Haven, Conn.

Wanted to exchange Lepidoptera. Write before sending list.—D. F. Berrenger, Fostoria, Ohio.

A few examples of *Microcyptus testaceus* Lec. for exchange. Desire Cleridæ and Cerambycidæ.—L. H. Joutel, 164 E. 117 St., N. Y. City.

Lepidoptera.—I have a large number of duplicates for exchange. Also pupæ, including *Triptogon modesta*, and other *sphinges*. Address Frank H. Engl, 1048 Byron St., Chicago, Ill.

I have a German correspondent anxious to exchange perfectly prepared and named European insects in all families, and orders for American insects. Address and introduction supplied. W. D. Kearfott, 114 Liberty St., New York.

Callosamia calleta cocoons to exchange—*Sphinx* pupæ desired.—W. T. Buxton, 17 Walter St., Somerville, Mass.

Wanted all kinds of native pupæ and cocoons, take also rare plants in exchange for exotic and native butterflies. Chas. F. Timm, 131 Ralph St., Brooklyn, N. Y.

Lepidoptera, duplicates. Fine tropical diurnals from Gilolo, Borneo, Jamaica, Brazil, Peru, W. Africa, Cuba, offered. Wanted desiderata from Haiti, P. Rico, Phillippines, Ecuador, Bolivia, Amazon River, etc. Walter Dannatt, 75 Vanburgh Park, London, England.

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